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Threshold 4: an evaluation of the Threshold Assessment Grid as an aid to mental health referrals

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Abstract

Background

The Threshold Assessment Grid (TAG) is a brief, standardised assessment of severity of mental health problems, for use by referrers to adult or elderly mental health teams.

Aim

To test whether referrer TAG rating predicted mental health team view of suitability of referral, and to identify guidance thresholds for referral.

Design of study

Multi-site prospective cohort study.

Setting

10 adult and elderly mental health services in London.

Method

For 605 referrals to mental health teams, a TAG was completed by the referrer and by the mental health team, who were blind to each other's ratings. The team also assessed the suitability of the referral.

Results

445 (74%) referrers and 308 (88%) mental health team TAGs were completed. 96 referrals were rated for suitability, and the mean referrer TAG score was significantly higher for patients assessed as suitable (6.8 vs. 5.2, $t=2.1$, $df=94$, $p=0.04$). The intra-class correlation between the referrer and team TAG total scores was 0.35 ($n=226$), indicating fair agreement. Sensitivity and specificity analyses indicated that using a TAG total score (possible range 0 to 24) of 5 or more as a threshold would give 76% sensitivity and 50% specificity in matching mental health team view of suitability.

Conclusion

Improved primary-secondary care communication can be facilitated when referrals are accompanied by a completed TAG. For patients whose referrer TAG total score is less than 5, the referral letter should state why the patient's mental health problems are of a severity to warrant specialist mental health service.

Keywords

Referral, mental health, primary health care.

Introduction

There is at present no standardised assessment used routinely when referring a person with severe mental health problems from primary care or other agencies to mental health services. This creates a tension for referrers – not referring a patient may deprive them of potential benefits from specialist mental health service, but referring a patient who is not seen as a suitable referral by the service wastes the time of the patient and delays the response time for other referrals. In either event, patient care will suffer. Anecdotally, this tension can manifest as poor communication between the two services, with the referrer experiencing the mental health team as unsupportive and arbitrary in which referrals it accepts, and the team feeling their efforts to focus on patients with severe mental health problems is being undermined by ‘inappropriate’ referrals.

The problem is not going away – referral rates from primary to secondary care for mental health problems have increased by a factor of 4.5 from 1971 to 1997 ¹, despite the patient preference for primary-care level talking therapy over medication or referral to a mental health professional ². Furthermore, the priorities of the service being referred to, the referrer and the patient may differ, making identification of the ‘appropriateness’ of referrals a complex process ³. In response to this, the Mental Health National Service Framework states that primary care and mental health services should have agreed referral protocols in place by the end of 2001 ⁴.

Agreeing referral protocols requires at least three developments: agreement that specialist mental health services should focus on the ‘severely mentally ill’ ⁴, shared agreement about who the severely mentally ill are ⁵, and a currency for

communication between primary care services (such as health and social services) and specialist mental health services. These challenges are not new – in 1994 the House of Commons Select Committee identified the need for a shared definition of severe mental illness⁵. The Department of Health responded to this report by setting up a clinically-led working party, which identified the need to develop a new assessment schedule to address the lack of consensus between agencies^{6, 7}. Accordingly, innovative consensus techniques (search workshops and Delphi Consultation) were used from 1997 to 1998 to develop an assessment that is acceptable to mental health service users and carers, primary and secondary health services, social services, housing services, care commissioners, and policy-makers. The resulting assessment – the Threshold Assessment Grid (TAG) – measures the severity of a person's mental health problems, and is intended for use when making a referral to specialist mental health services⁸.

The aim of this study was to investigate whether the TAG is useable as the 'currency' for a referral protocol between primary and secondary health care agencies. The study had four goals: (i) to identify the maximum response rate which can be achieved when an infrastructure is provided to support clinicians in completing the TAG; (ii) to test whether referrer TAG score predicted the mental health team view of suitability of the referral; (iii) to compare referrer TAG and the mental health team TAG scores, to investigate whether the TAG can be used as a means of communication between agencies; and (iv) to explore the implications of using a TAG score as a threshold for referrals to mental health services.

Method

The data presented here were collected as part of a larger study to investigate the psychometric properties of the TAG, which has been reported elsewhere ^{9, 10}.

Setting

Ten routine (*i.e.* long-term National Health Service-funded) Community Mental Health Teams (CMHTs) in London participated in the study, between 1999 and 2000. The teams were chosen to ensure a range of locations (3 inner, 5 outer, 2 suburban), deprivation levels (MINI ¹¹ scores ranging from 98 to 123.6, indicating the upper end of deprivation) and client groups (8 adult, 1 adult day care, 1 elderly).

Patients

60 consecutive referrals to each CMHT were included in the study.

Intervention

When the referral was received by the team, the TAG was faxed to the referrer, with a request to complete and return it. This request was followed up by telephone or fax, to maximise response rate. Where an assessment by the CMHT was offered, the assessing CMHT clinician was asked to complete a TAG following initial assessment. All referrals in the last third of the study (n=131) were also rated by the CMHT clinician following their assessment as to whether the referral was suitable for the CMHT. No criteria were specified for this assessment, which was made on the clinician's judgement. A range of factors will clearly impact on whether the referral is made and whether it is judged suitable, so the intent is not to imply that the referral

was ‘right’ (which would require assessment from more than just the CMHT perspective), but to provide a measure of agreement about the referral.

Time of study

The study took place between June 1999 and September 2000.

Assessments

The Threshold Assessment Grid (TAG) comprises a 1-page score-sheet requiring one tick to indicate level of severity in each of 7 domains: (i) intentional and (ii) unintentional self-harm, risk (iii) from and (iv) to others, and (v) survival, (vi) psychological and (vii) social needs / disabilities. The scale is “None”, “Mild”, “Moderate” and “Severe” (4-point scale) for domains (ii), (iii), (vi) and (vii), with an extra “Very severe” domain for the remaining 3 domains (which may require immediate action). In routine practice it takes mental health staff 3 minutes and referrers 4 minutes to complete. The TAG total score is calculated by summing the domain scores (0 for None, 1 for Mild, 2 for Moderate, 3 for Severe and 4 for Very Severe), with a possible score ranging from 0 to 24. The TAG is printed in the paper describing its development ⁸, and further details can be found at www.iop.kcl.ac.uk/prism/tag.

Analysis

All analysis was carried out using SPSS 8.0 for Windows. Local Research Ethics Committee approval was gained for all participating sites, and the study was overseen by an advisory group.

Results

Response rate

Referrers to the 10 Community Mental Health Teams (CMHTs) and referrer TAG scores are shown in Table 1.

Insert Table 1 here

Referrer TAGs were completed for 445 (74%) patients, including 288 (76%) of the 380 GP-referred patients. For the 160 patients for whom referrer TAGs were not completed, 127 (79%) were offered an assessment, 90 (71%) were seen by the CMHT, and the mean CMHT TAG total score was 5.6 (0-14). The subsequent pathway through care for the 605 patients and the mean CMHT TAG scores are shown in Table 2.

Insert Table 2 here

Hence 299 of the 380 GP-referred patients were offered an assessment by the CMHT, and TAGs were completed by CMHT staff for 190 of the 217 patients actually seen. 101 CMHT staff completed TAGs, comprising 39 psychiatric nurses, 41 psychiatrists, 11 clinical psychologists, 7 occupational therapists, 1 care manager and 1 art therapist. For all CMHT TAGs rated, CMHT staff had a mean of 13.7 years post-qualification experience. Overall, the return rate was 74% for all referrers, and 88% for mental health staff.

Did referrer TAG score predict suitability as rated by the CMHT?

Of the 445 patients with referrer TAGs, 96 were rated for suitability of referral by the CMHT. The mean referrer TAG total score for the 76 patients assessed as suitable was 6.8 (range 1-16), and for the 20 patients assessed as not suitable was 5.2 (range 2-13). This difference was significant ($t=2.1$, $df=94$, $p=0.04$).

Do referrer and CMHT scores agree?

For the 226 patients who had both a referrer (mean 6.5) and a CMHT TAG (mean 5.0) completed, the correlation between the referrer and CMHT TAG total scores was 0.35. For GP-referred patients (141 patients), the correlation was 0.29. Both these indicate fair agreement ¹².

Threshold for referral

Table 3 shows the implications of using TAG total score or three arbitrarily chosen categories as referral thresholds.

Insert Table 3 here

Sensitivity indicates the probability (percentage) of a suitable referral being correctly identified using the criterion, and specificity indicates the probability of an unsuitable referral being correctly identified as unsuitable using this criterion. Positive predictive value indicates the probability of an assessment rated as suitable using TAG criteria actually being suitable, and negative predictive value indicates the probability of an assessment rated as unsuitable using TAG criteria actually being unsuitable.

Discussion

The usefulness of the TAG as a means of identifying the priority group for mental health services was investigated. The completion rates were 74% from referrers and 88% from mental health staff. Referrer TAG score predicted whether the referral was seen as suitable by the mental health team after their own assessment. There was fair agreement between referrer and mental health team TAGs. Various referral thresholds were tested.

This study had four goals, which will be considered in turn. The Green and Eriksen ¹³ model of practice change was used to maximise response rate, comprising phases of predisposing, reinforcing and maintaining change. The completion rates of 74% from all referrers (and 76% from the sub-sample of 380 GP referrals, accounting for 63% of all referrals) may represent the maximum return rate which can be initially obtained when introducing a new assessment. The second goal was to test whether referrer TAG predicted mental health team view of suitability following their assessment. This was found to be the case, providing some evidence that the referrer TAG score can be used to identify those patients requiring specialist mental health care. The TAG is therefore the first standardised assessment for which there is preliminary evidence of its relevance to Mental Health National Service Framework Standard 2, which states *“Any service user who contacts their primary health care team...should...be offered...referral to specialist services...if they require it”* ⁴. The third goal was to compare referrer and mental health team ratings. Referrer ratings were lower than CMHT ratings, perhaps due to the use of different reference groups by the two groups, based on their different patient populations. However, a fair correlation was found between referrer and mental health team ratings: 0.35 for all referrers and 0.29

for GP referrers. This provides some evidence that the TAG can be used as a meaningful measure for communication between referrers and CMHTs.

Referral threshold

The final goal was to investigate the use of referral thresholds, by comparing referrer ratings with CMHT assessment of the suitability of the referral. This method has several potential problems. First, the mental health problems of the patient may have changed between referral and CMHT assessment. Second, using the CMHT rating implies this is the best measure of suitability. In this study, all referrals by definition were seen as suitable by the referrers, so the CMHT view was the only external measure possible. A more robust design would involve assessment of the multiple perspectives of the patient, referrer and CMHT as to the suitability of the referral. Third, it could be argued that the decision of the CMHT not to offer an assessment is in itself indicating a view that the referral was unsuitable, and so this should be included in the suitability measure used. However, in practice (consistent with other research ¹⁴) it was found that CMHTs used a variety of algorithms in deciding whether to offer an assessment, so this was not used to inform the suitability rating. Fourth, no rating of referral suitability was available for patients who did not attend appointments. Non-attenders are known to have more severe mental health problems and social disability than attenders ¹⁵, although in this study the referrer TAG total score for the 96 patients who did not attend an offered appointment compared with the 349 other patients with completed referrer TAGs did not differ (6.8 vs. 6.3, $t=1.1$, $df=443$).

A rigid threshold for referrals is not recommended. The data demonstrate that false positives and negatives cannot be avoided just by using TAG scores. Furthermore, to recommend that TAG scores should be the only means of deciding whether to refer or how to respond to a referral would be to ignore the complex system-level influences which helpfully operate between referrers and CMHTs. For example, where a referrer is aware that a CMHT is over-stretched, they will raise their own implicit threshold for making a referral. Similarly, where a CMHT has a good relationship with a referrer, they may be more inclined to offer an assessment because they believe the referrer's judgement to be sound. These processes are positive, and maximise cost-effectiveness from mental health teams.

Bearing these caveats in mind, this study indicates that the TAG can be used to provide *guidance* on referral thresholds. If the concern is to ensure that all referrals are suitable (*i.e.* to avoid a false positive), then a threshold of at least 1 severe or very severe domain will ensure that 95% of referrals are suitable. However, 74% of referrals not meeting this criterion will in fact be suitable – a high false negative rate. If the concern is to ensure that all suitable referrals are offered assessment (*i.e.* to avoid a false negative), then using a threshold of 3 or more will ensure that 91% of suitable referrals are identified. However, 80% of unsuitable referrals will also meet this criterion – a high false positive rate. If the view is taken that the 'cost' of a false negative is the same as the 'cost' of a false positive, then the best cut-off is that which maximises the sum of the sensitivity and specificity ¹⁶. In this case, either of two referral thresholds might be chosen: a TAG score of 5 or more, or at least 2 moderate domains.

Using the TAG

These data may inform negotiation between primary care (as the main referrers) and secondary care as to how TAG can be used to improve patient care, by minimising the number of unsuitable referrals and hence maximising the capacity of the mental health team to respond to referrals. This negotiation will also stimulate discussion about differences in perspective concerning the importance of severity in making referrals, since it is clear that primary care professionals are ambivalent about the policy of focussing secondary mental health services on the ‘severely mentally ill’ – another reason why the use of a strict TAG cut-off is not recommended.

Specifically, an empirically justified referral protocol between primary and secondary care might involve an agreement that all referral letters will be accompanied by a completed TAG, and that for those patients whose TAG total score is less than 5 the letter will state why the patient’s mental health problems are of a severity to warrant specialist mental health service. The referral letter should also include background and social history, details of presenting problems, interventions tried and outcomes achieved, reason for referral, and roles expected of the CMHT ^{17, 18}.

Study design

A strength of this study was that it took place within *routine* services, with all data completed by referrers and mental health clinicians (and not researchers), which enhances the generalisability of the results. An evaluation of the suitability of the TAG for routine use is reported elsewhere ¹⁰. Mental health teams were blind to the referrer TAG scores, to allow investigation of their relationship. This study provides preliminary evidence, and the next stage of scientific development will be to

investigate the impact on both primary and secondary care services when the TAG is introduced into routine practice.

Several limitations can be identified. Although data were provided by clinical staff, the information infrastructure to support the use of the TAG, such as providing forms, analysing data and giving feedback, was provided by researchers. No electronic systems of communication (*e.g.* email, electronic referral templates) were in place between any of the primary and secondary care services in this study. The extent to which TAG can be used routinely has not therefore been fully evaluated. Furthermore, the study only involved patients who had been referred, thus excluding those patients whom the team would have seen as suitable for referral but the potential referrer did not. There is no information on these ‘false negatives’, so no conclusions can be drawn as to whether TAG helps with recognition of who to refer. The next stage of research, therefore, should investigate whether using TAG leads to an increased ability to discriminate between who to refer and who not to refer. Finally, the criteria applied by mental health staff in assessing suitability were not evaluated, and so a range of approaches may have been used.

Despite these limitations, using the TAG may be an improvement on current practice – its use as advocated here will encourage explicit negotiation between primary and secondary care, the resulting recommendations for referral guidance are empirically based, and its psychometric properties have been evaluated. The TAG can therefore be recommended as an approach to improving primary / secondary care communication, and giving guidance to all referrers about when to refer. It is feasible for routine use, with a 74% completion rate from referrers and 88% from mental

health staff. This study provides guidance for referral thresholds. Improved agreement between primary and secondary care services about mental health referrals may lead to people with more severe mental health problems receiving faster access to specialist mental health care.

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Type of Referrer	Number of referrers	Number of referrals n	Completed referrer TAGs	
			n (%)	Median (inter- quartile range)
General Practitioner	300	380	288 (76)	6.0 (3.0-8.0)
Psychiatrist	110	130	94 (72)	7.0 (5.0-19.0)
Nurse	5	34	9 (90)	6.5 (3.0-9.0)
Care Manager	21	22	15 (68)	6.0 (6.0-11.0)
Liaison mental health team	6	10	26 (77)	8.0 (5.0-9.0)
Other *	12	24	13 (54)	8.0 (6.0-10.5)
Self	5	5	-	-
Total	485	605	445 (74)	6.0 (4.0-8.0)

* 2 Housing offices, 3 volunteer organisations, 2 health visitors, 3 drug & alcohol services, 2 parole officers, 8 medical physicians, 4 psychologists,

Table 1: Mental health service referrers, and referrer-completed TAG scores

(n=605)

Referrer type	n	Offered assessment by CMHT	Patients assessed	CMHT TAGs	
		n (%)	n (%)	n (%)	Median (inter- quartile range)
General Practitioner	380	299 (79)	217 (73)	190 (88)	5.0 (3-6.25)
Psychiatrist	130	107 (82)	76 (71)	67 (88)	5.0 (3.0-7.0)
Nurse	34	28 (82)	19 (68)	17 (95)	4.0 (1.0-7.0)
Care Manager	22	17 (77)	14 (82)	12 (86)	6.0 (4.25-8.75)
Liaison MHT	10	9 (90)	6 (67)	5 (83)	9.0 (3.0-11.0)
Other	24	19 (79)	16 (84)	15 (94)	3.0 (1.0-6.0)
Self	5	4 (80)	2 (50)	2 (100)	6.5 (6.0-7.0)
Total:	605	483 (80)	350 (72)	308 (88)	5.0 (3.0-7.0)

Table 2: Assessments offered by Community Mental Health Team (CMHT), patients assessed, and CMHT TAG scores (n=605)

Referrer TAG score threshold	Number (%) of referrals meeting this threshold	Sensitivity	Specificity	Positive	Negative
				predictive value	predictive value
TAG score of 3 or more	85 (89)	91	20	81	36
TAG score of 4 or more	78 (81)	86	35	83	39
TAG score of 5 or more	68 (71)	76	50	85	36
TAG score of 6 or more	58 (60)	64	55	82	29
At least 1 moderate domain	76 (79)	83	35	83	35
At least 2 moderate domains	58 (60)	66	60	86	32
At least 1 severe or very severe domain	21 (22)	26	95	95	25

Table 3: Properties of different TAG referral thresholds (n=96)